

REMARKS

In the Office Action¹, the Examiner took the following actions:

- (a) objected to the title of the application;
- (b) objected to the specification;
- (c) rejected claims 1, 6-9, 13, and 14 under 35 U.S.C. § 103(a) as being unpatentable over either Horimai et al., U.S. Patent No. 5,917,798 ("Horimai"), or alternatively WO99/44195 via its U.S. equivalent, U.S. Patent No. 7,130,092 ("Horimai II") in view of Moerner et al., U.S. Patent No. 5,607,799 ("Moerner") or Bai et al., U.S. Patent No. 5,665,493 ("Bai");
- (d) rejected claims 15-19 under 35 U.S.C. § 103(a) as being unpatentable over either Horimai or Horimai II in view of Moerner or Bai and further in view of allegedly "acknowledged prior art" in Applicants' specification as it refers to JP 2002-123949 ("JP 949");
- (e) rejected claims 1, 6-9, 13, and 14 under 35 U.S.C. § 103(a) as being unpatentable over Amble et al., U.S. Patent No. 6,738,322 ("Amble") in view of Cumpston et al., U.S. Patent No. 6,322,931 ("Cumpston");
- (f) rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Amble in view of Cumpston and Takeuchi et al.², U.S. Patent No. 4,856,857 ("Takeuchi"); and
- (g) rejected claims 15-19 under 35 U.S.C. § 103(a) as being unpatentable over Amble and Cumpston in view of allegedly "acknowledged prior art" in Applicants' specification as it refers to JP 949.

Applicants have added new claims 20 and 21, which recite elements from originally-filed claims 4 and 5, respectively. In addition, Applicants have added new

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

² The Examiner cited Takeuchi in the Office Action but did not provide a document citation. However, the Examiner identified Takeuchi as U.S. Patent No. 4,856,857 in an April 14, 2008, telephonic interview with Applicants' representative.

claims 22 and 23, which are supported in Applicants' specification at, for example, page 11, lines 25-29. Upon entry of this Amendment, claims 1, 3, and 6-23 are pending, with claims 1, 3, 6-9, and 13-23 under current examination.

Telephonic Examiner Interview

Applicants thank the Examiner for the time and courtesy extended to Applicants' representative by conducting a telephonic interview on April 14, 2008. The title of the application and Takeuchi were discussed. The Examiner cited Takeuchi in the Office Action but did not provide a document citation. Applicants thank the Examiner for identifying Takeuchi as U.S. Patent No. 4,856,857 in the April 14 telephonic interview.

Applicants request that the Examiner identify Takeuchi by its U.S. Patent No. on a Form PTO-892 with the next communication from the USPTO. The substance of the April 14 telephonic interview is further discussed below.

Objection to the Title

The Examiner asserted that the amended title of the invention is not descriptive and that "[t]he examiner cannot reconcile applicants' comments with respect to the title as stated on page 14 of the above dated communication. There is no amendment to the specification." Office Action at 2.

For the record, and as discussed during the April 14 interview, Applicants respectfully disagree and point out that the Amendment filed with a Request for Continued Examination on November 13, 2007 included an amendment to the specification, in the form of an amendment to the title. Further, on page 14 of the November 13, 2007 Amendment, Applicants indicated that they had amended the title in the manner suggested by the Examiner. In addition, in the Advisory Action mailed

October 26, 2007, the Examiner indicated that the "amendment to the title has been entered." Advisory Action, Continuation Sheet.

During the April 14, 2008 telephonic interview, the Examiner acknowledged that, in the October 26, 2007 Advisory Action, he had indicated the amended title would be entered, and that the maintained objection to the title was likely a clerical error in the Office Action mailed January 15, 2008. Therefore, Applicants deem this objection overcome and respectfully request that the Examiner withdraw the objection to the title of this application.

Objection to the Specification

Applicants have amended the specification at page 9, lines 29-31, to correct typographical errors identified by the Examiner. No new matter has been introduced. Applicants respectfully request withdrawal of the objection to the specification.

Rejections under 35 U.S.C. § 103(a)

Claims 1, 6-9, 13, and 14

Applicants respectfully traverse the rejection of claims 1, 6-9, 13, and 14, as being unpatentable over either Horimai or Horimai II in view of Moerner or Bai.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007). "A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention." M.P.E.P. § 2145. Furthermore, "[t]he mere fact that references can be combined or modified does not render the resultant

combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. M.P.E.P. § 2143.01(III), internal citation omitted. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” M.P.E.P. § 2141.02(I), internal citations omitted (emphasis in original).

The Examiner alleged that “optical density is a function of the amount of radiation/illumination upon a record material as well as the ‘servo region’ and ‘data region’” (Office Action at 3). The Examiner made this allegation with regard to the recitation “regions of differing optical density” in independent claims 1, 8, 9, 13, and 14. Applicants respectfully disagree with the Examiner’s allegations. Optical density is not a function of the amount of radiation/illumination upon a record material. Instead, optical density (OD) is defined as:

$$OD = -\log_{10} (I/I_0)$$

where I is the intensity of light transmitted through a material under evaluation and I_0 is the intensity of light transmitted through a reference material. Thus, optical density is a ratio of two illumination values obtained from the same light source passing through two different materials. Optical density is a property of the material under evaluation, and is not affected by the amount of radiation/illumination of the light source.

Nothing in Horimai, Hormai II, Moerner, and Bai, taken separately or in any combination, discloses or suggests at least Applicants’ claimed “a recording layer that contains regions of differing optical density,” as recited in independent claims 1, 8, 9,

13, and 14. For at least this reason, each of independent claims 1, 8, 9, 13, and 14 should be allowable over Horimai, Hormai II, Moerner, and Bai, taken separately or in any combination. Claims 6 and 7 should also be allowable, at least due to their dependence from base claim 1.

In addition, regarding claims 13 and 14, the Examiner maintained that “the relationship described in the remainder of these claims is merely a mathematical expression defining the optical density in relationship to various system parameters” and that “the description merely describes what is already present” (Office Action at 4). Applicants respectfully disagree. Each of claims 13 and 14 recites “a recording layer that contains regions of differing optical density,” which, as established above, is not disclosed or suggested by any of Horimai, Hormai II, Moerner, and Bai, taken separately or in any combination. Thus, the claimed optical density expressions recited in claims 13 and 14 are not merely descriptions of “what is already present.” *Id.* Rather, the expressions claim the relationship of optical density to a depth (z) (in claim 13) and to a distance from the center of the spot in a direction across the track, and to a distance from the surface of the incident side into the recording layer (in claim 14). Since none of Horimai, Hormai II, Moerner, and Bai, taken separately or in any combination, disclose or suggest “a recording layer that contains regions of differing optical density,” as recited in claims 13 and 14 (emphasis added), then none of Horimai, Hormai II, Moerner, and Bai, taken separately or in any combination, disclose or suggest the claimed expressions for optical density recited in claims 13 and 14. Claims 13 and 14 should therefore be allowable.

For at least these reasons, Applicants respectfully request withdrawal of the rejection of claims 1, 6-9, 13, and 14.

Claims 15-19

Applicants respectfully traverse the rejection of claims 15-19 as being unpatentable over Horimai or Horimai II in view of Moerner or Bai and further in view of JP 949. As established above, each of independent claims 1, 8, 9, 13, and 14 should be allowable over Horimai, Horimai II, Moerner, and Bai, taken separately or in any combination. Claims 15-19 should therefore also be allowable over Horimai, Horimai II, Moerner, and Bai, at least due to their respective dependence from base claim 1, 8, 9, 13, or 14.

In addition, JP 949 fails to disclose or suggest “a recording layer that contains regions of differing optical density,” as recited in independent claims 1, 8, 9, 13, and 14. Thus, for at least this reason, JP 949 fails to overcome the deficiencies of any of Horimai, Horimai II, Moerner, and Bai. Therefore, independent claims 1, 8, 9, 13, and 14 should be allowable over Horimai, Horimai II, Moerner, Bai, and JP 949. Claims 15-19 should also be allowable over Horimai, Horimai II, Moerner, Bai, and JP 949, at least due to their respective dependence from base claim 1, 8, 9, 13, or 14. Applicants therefore respectfully request withdrawal of the rejection of claims 15-19.

Claims 1, 6-9, 13, and 14

Applicants respectfully traverse the rejection of claims 1, 6-9, 13, and 14. Neither Amble nor Cumpston, taken separately or in combination, discloses or suggests “a recording layer that contains regions of differing optical density,” as recited in independent claims 1, 8, 9, 13, and 14. Instead, Amble merely discloses an “optical

data storage system compris[ing] an optical medium including a servo plane and at least one data plane" (Amble, Abstract). Cumpston discloses "an optical data storage system utilizing a host material and molecules that exhibit non-linear absorption dissolved therein" (Cumpston, Abstract). The combination of Amble and Cumpston therefore fails to disclose or suggest at least "a recording layer that contains regions of differing optical density," as recited in independent claims 1, 8, 9, 13, and 14.

For at least this reason, independent claims 1, 8, 9, 13, and 14 should be allowable over Amble and Cumpston, separately or in combination. Claims 6 and 7 should also be allowable, at least due to their dependence from base claim 1. Applicants therefore respectfully request withdrawal of the rejection of claims 1, 6-9, 13, and 14.

Claim 3

Applicants respectfully traverse the rejection of claim 3. As established above, independent claim 1 should be allowable over Amble and Cumpston, taken separately or in combination. Claim 3 should be allowable over Amble and Cumpston, at least due to its dependence from base claim 1.

Regarding Takeuchi, the Examiner alleged that "the plural recording layers having the high and low optical density is considered merely an alternate record structure" (Office Action at 5). The Examiner then alleged that Amble "indicates that the recording information can be found through a plurality of data locations/planes/layers" and that Takeuchi "teaches ... having a laminated holographic recording structure." *Id.* The Examiner concluded that "[t]he overall ability of ... having a plurality of recording

layers wherein the higher optical density layer is closer to the incident side of the light source, then followed by a layer of lower/low optical density is seen to follow.” *Id.* at 6.

Applicants respectfully disagree. As established above, Amble and Cumpston are silent regarding optical density. Takeuchi also does not disclose or suggest “a recording layer that contains regions of differing optical density,” as recited in independent claim 1. Instead, Takeuchi merely discloses “a transparent hologram-forming layer and a holographic effect-enhancing layer” and that “[t]he holographic effect-enhancing layer has a refractive index different from that of the transparent hologram-forming layer.” Takeuchi, Abstract. Neither Amble’s alleged disclosure of a “plurality of data locations/planes/layers” nor Takeuchi’s alleged disclosure of “laminated holographic recording structure” discloses or suggests any information about optical density. Thus, even if one combined the teachings of Amble, Cumpston, and Takeuchi as the Examiner suggested, the combination would still not disclose or suggest “a recording layer that contains regions of differing optical density,” as recited in independent claim 1. Independent claim 1 should therefore be allowable over Amble, Cumpston, and Takeuchi, taken separately or in any combination. Claim 3 should also be allowable over Amble, Cumpston, and Takeuchi, at least due to its dependence from base claim 1.

Moreover, because the combination of Amble, Cumpston, and Takeuchi fails to disclose or suggest anything about optical density, Amble, Cumpston, and Takeuchi also fail to disclose or suggest “the recording layer includes a high optical density layer and a low optical density layer corresponding to the signal light, and the high optical density layer is arranged on the incident side relative to the low optical density layer,” as

recited in claim 3. For at least these reasons, Applicants respectfully request withdrawal of the rejection of claim 3.

Claims 15-19

Applicants respectfully traverse the rejection of claims 15-19 as being unpatentable over Amble in view of Cumpston and JP 949. As established above, independent claims 1, 8, 9, 13, and 14 should be allowable over Amble and Cumpston, separately or in combination. Claims 15-19 should also be allowable over Amble and Cumpston, at least due to their respective dependence from base claim 1, 8, 9, 13, or 14. As also established above, claims 15-19 should also be allowable over JP 949. Further, JP 949 fails to overcome the deficiencies of Amble or Cumpston, at least because Amble, Cumpston, and JP 949, taken separately or in any combination, fail to disclose or suggest "a recording layer that contains regions of differing optical density," as recited in independent claims 1, 8, 9, 13, and 14. Independent claims 1, 8, 9, 13, and 14 should therefore each be allowable over Amble, Cumpston, and JP 949, taken separately or in any combination. Claims 15-19 should also be allowable over Amble, Cumpston, and JP 949, at least due to their respective dependence from base claim 1, 8, 9, 13, or 14.

New Claims

Applicants have added new claims 20-23. Applicants have established that independent claim 1 should be allowable over each of Horimai, Horimai II, Moerner, Bai, JP 949, Amble, Cumpston, and Takeuchi, separately or in any combination. Each of new claims 20-23 should also be allowable, at least due to their dependence from base claim 1.

Conclusion:

In view of the foregoing, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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